Check Equivalent Expressions

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Determine whether two expressions always represent the same quantity.
- Use an equation, inequality, table, or diagram to justify your reasoning.
- Explain your answer using mathematical vocabulary and units.

5-minute warm-up

Discuss with a partner: What previous algebra or number skill will help with today’s lesson?

Show one calculation or example in your notebook.

Why this lesson matters

Two subscription calculations look different. Are they equal for any month?

What is known? What is unknown? Which quantities are related?

Represent the relationship

Two subscription calculations look different. Are they equal for any month?

$$4(m + 3) = 4m + 12$$

Explain the meaning of the variable, numbers, and operations.

Worked example

Are $-2(x - 5)$ and $-2x + 10$ equivalent?

$$-2(x - 5) = -2x + 10$$

Check: Does the result match the original relationship?

Independent practice

1. Are $5(x + 1)$ and $5x + 1$ equivalent?

2. Rewrite $4(n - 3) + 2$ in simplest form.

Check your reasoning

Question 1

$$5(x+1)=5x+5$$

Question 2

$$4n-10$$

Group challenge

A student uses x = 1 only to prove equivalence. Explain why one example is not proof.

Each group member must explain one step or defend one claim.

Group challenge • solution

Use an identity for all x

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Rewrite $4(n - 3) + 2$ in simplest form.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Expand $-3(z + 2)$.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$-3z - 6$$

Reflect: What would you check before moving to the next lesson?